

TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/RU2005/000158	International filing date (<i>day/month/year</i>) 31.03.2005	Priority date (<i>day/month/year</i>) 01.04.2004
International Patent Classification (IPC) or national classification and IPC C01B3/02, 17/04, B01D53/72		
Applicant INSTITUT KATALIZA IMENI G.K. BORESKOVA SIBIRSKOGO OTDELENIYA ROSIISKOI AKADEMII NAUK		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of _____ sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/RU	Authorized officer
Facsimile No.	Telephone No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* _____ received by this Authority on _____
- nos.* _____ received by this Authority on _____
- ☐ the drawings:
- sheets _____ as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1	YES
	Claims		NO
Inventive step (IS)	Claims	1	YES
	Claims		NO
Industrial applicability (IA)	Claims	1	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
<p>Reference is made to the following documents:</p> <p>D1: RU 2216506 C1, 20. 11. 2003</p> <p>D2: US 4399112 A, 16. 08. 02. 1983</p> <p>D3: US 3962409 A, 08. 06. 1976</p> <p>D4: US 4439412 A, 27. 03.1984</p> <p>D1 is the closest prior art. A method is known from D1 for decomposing hydrogen sulfide, including passing a hydrogen sulfide-containing gas at a temperature below 200°C through a layer of solid material, capable of decomposing hydrogen sulfide with release of hydrogen and formation of sulphur-containing compounds on the surface of the material.</p> <p>The feature distinguishing the claimed method from the method known from D1 consists in that decomposition of a hydrogen sulfide- and/or mercaptan-containing gas is performed by passing it through a layer of a solid catalyst placed in a layer of fluid capable of dissolving intermediate reaction products and/or sulphur forming on the surface of the catalyst.</p> <p>These distinctive features make it possible to solve the problem of developing a more efficient</p>			

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>method for decomposing hydrogen sulfide- and/or mercaptan-containing gases, which does not require frequent regeneration of the solid catalyst.</p> <p>A method is known from D2 for decomposing hydrogen sulfide and/or mercaptans contained in a gas by performing the stages of hydration and catalytic oxidation with production of sulphur.</p> <p>Catalytic decomposition of a sulphur-containing gas into hydrogen and sulphur is known from D3-D4.</p> <p>The distinctive features are not known from the prior art. Therefore, the claimed invention meets the requirements of novelty and inventive step.</p> <p>The claimed invention meets the requirement of industrial applicability.</p>

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The set of claims contains the features "solid material" and "fluid substance", which are not clearly presented, contrary to the requirements of PCT Article 6. Therefore, the set of claims was examined taking into account the description (see page 3, paragraph 4), from which it follows that a catalyst was used as the solid material, and a fluid capable of dissolving intermediate reaction products and/or sulphur forming on the surface of a catalyst was used as the fluid.